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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,398

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Iain B. Findleton

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OGILVY RENAULT LLP
1981 MCGILL COLLEGE AVENUE
SUITE 1600
MONTREAL, QC H3A2Y3
CANADA

EXAMINER

LE, UYEN T

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,398

Applicant(s)

FINDLETON ET AL.

Examiner

Uyen T. Le

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9 April 2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because the status of related applications has not been updated.

Appropriate correction is required.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP§608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP§2172.01. The omitted steps are: completing all read operations on said data element before executing said write transaction request on said data element, in claims 1 and 12 after "retrieving from said execution queue...up to a write transaction

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request for said data element". Without ensuring that all read transactions had been completed, it does not seem possible for ensuring data retrieval transactions originating from one client on said element is not compromised by data update transactions on said data element originating from other clients recited in the last paragraph of claims 1 and 12.

4. Claims 2, 5, 7, 8, 10, 13, 16, 18, 19, 21 are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because:

Claims 2, 13, it is not clear how checking whether a version state associated with said data element is locked recited at line 2 determines whether the data element is locked or not.

Claim 7, 18 do not seem to cure the deficiency of their parent claims 2 and 13

Claims 5, 16, last line "said data element contents" lacks antecedent basis

Claim 12, paragraph before last paragraph "at least one of said...to execute said common task" is ambiguous. Furthermore, the claimed "said retrieval data element" lacks antecedent basis. Applicant is kindly requested to rephrase the limitations using active steps as in the preceding steps for example receiving, adding, retrieving...to clarify the claimed subject matter

Claims 8, 19, line 2, "said version state information" lacks antecedent basis

Claims 10, 21, line 1, "said initial version state" lacks antecedent basis.

Art rejection is applied to claims 2, 5, 7, 8, 10, 13, 16, 18, 19, 21 as best understood in light of the rejection under 35 U.S.C. 112, second paragraph discussed above.

Claim Objections

5. Claim 16 is objected to because of the following informalities: it appears that claim 16 contains a typographical error. Claim 16 at present is an exact duplicate of claim 5.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by DeRoo (US 6,182,196) cited by the applicant.

Regarding claim 1, DeRoo discloses all the claimed subject matter including "receiving at a shared medium...on said shared medium" (see Figure 9, steps 702, 704), "adding said transaction requests to an execution queue in order" (see Figure 7, column 10, line 44- column 11, line 19), "retrieving from said execution queue...data element" (see Figure 9, step 710), "executing said write transaction...said write transaction request is completed" (see Figure 9, steps 706, 708 and Figure 7). The claimed "whereby data retrieval transactions on said data element, originating from one

or more clients, are not compromised by data update transactions on said data element originating from other clients" merely reads on the fact that the read operations in the method of DeRoo do not affect the write operations since the method ensures proper processing order of the operations (see the abstract).

Claim 12 merely differs from claim 1 by adding a paragraph which renders the claim indefinite as discussed above. The examiner interprets the limitations to mean at least a computer is writing to the shared data element and a client is reading that data element. The method of DeRoo clearly handles read/write by different computers in that manner (see Figures 7, 9).

Regarding claims 6, 17, DeRoo discloses said shared medium controller is physically located with the shared medium (see Figure 6).

Claim Rejections - 35 USC § 103

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-5, 7-11, 13-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRoo (US 6,182,196) cited by the applicant.

Regarding claims 2, 13, although DeRoo does not specifically show checking whether a version state associated with said data element is locked, it is notoriously well known in the art for shared data to be associated with different version states.

Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of DeRoo in order to determine whether to queue the request if the version state is locked or execute it right away if the version state is unlocked.

Regarding claims 3, 14, although DeRoo does not specifically show said data elements are referred to as pointers defining an address range, DeRoo clearly shows data elements are stored in memory at specific addresses (see Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of DeRoo in order to generate memory access commands.

Claims 4, 15 merely read on the fact that read operations submitted after a write operation has started are suspended until the write operation is completed. The method of DeRoo clearly operates in that manner since it serializes operations that collide (see the abstract).

Regarding claims 5, 16, the claimed "providing to said shared ...to be read" is met by the fact that shared data stored at a client conventionally has a version number. Although DeRoo does not specifically show comparing the client-stored version state information with a shared medium stored state information and sending to originating client a confirmation that the client-stored version state information and the data element contents are accurate, it would have been obvious to one of ordinary skill in the art to do so in order to avoid transmitting a duplicate version unnecessarily to the client.

Regarding claims 7, 18, DeRoo discloses a data element is locked following a transaction request originating from a client when DeRoo shows serialization of requests and processing order of colliding transactions (see the abstract).

Regarding claims 8, 19, although DeRoo does not specifically show a list of version state information and creation of a new version state associated with a part of data element that has been modified, it is notoriously well known in the art for shared data to be associated with different version states. Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of DeRoo in order to keep track of all changes to a data element.

Regarding claims 9, 20, although DeRoo does not specifically show creating a new single data structure in said list associated with modified data elements associated with multiple separate data structures and removing the multiple separate data structures from the list, it would have been obvious to one of ordinary skill in the art to do so in order to eliminate redundant data.

Regarding claims 10, 21, although DeRoo does not specifically show how to derive new version state, it is well known in the art to increase the version number from the initial version number anytime a new version state is created. Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of DeRoo in order to systematically create new version states.

Regarding claims 11, 22, DeRoo does not specifically show said list of data structures is a double linked binary tree list. However, since using a double linked binary tree would speed up data access, it would have been obvious to one of ordinary skill in the art to include such a list while implementing the method of DeRoo in order to benefit from a well known technique for speeding up data access.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Soltis et al (US 6,493,804) teach global file system and data storage device locks.

Jadav et al (US 6,272,662) teach distributed storage system using front-end and back-end locking.

Sumimoto (US 5,813,016) teaches processing shared data accessed by a plurality of data processing devices/systems.

Elko et al (US 6,615,373) teach resolving potential deadlocks.

Burns et al (US 2003/0028695) teach producer/consumer locking system for efficient replication of file data.

Chandrasekaran et al (US 2002/0099729) teach managing checkpoint queues in a multiple node system.

Bamford et al (US 2002/0016795) teach managing recovery of data after failure of one or more caches.

Helal et al, "Adaptive Transaction Scheduling", ACM 1993, pages 704-713.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uyen T. Le whose telephone number is 571-272-4021.

The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

22 September 2006


UYEN LE
PRIMARY EXAMINER